

**REMARKS**

Claims 1-17 are pending in this application.

Applicants thank Examiner Verbitsky for the courtesy extended to Applicants' representative, Mr. Luo, during the September 13, 2005 personal interview. The substance of the personal interview is incorporated in the following remarks.

By this Amendment, claim 8 is amended, and claim 17 is added. (See the specification at, for example, paragraph [0017].)

The specification is amended, as the Examiner suggested during the personal interview. As indicated by Examiner Verbitsky, the amendments to the specification are only for clarification. No new matter is added.

The Examiner is respectfully requested to acknowledge consideration of the references listed in, and return initialed copies of, Forms PTO-1449 of the June 8 and 24, 2005 Information Disclosure Statements. For the Examiner's convenience, copies of the June 8 and 24, 2005 Forms PTO-1449 are enclosed herein.

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any new issue requiring further search and/or consideration (as the amendments amplify issues previously discussed throughout prosecution); and (c) place the application in better form for appeal, should an appeal be necessary. Entry of the amendments is thus respectfully requested.

The Office Action rejects claims 1-12 and 14-16 under 35 U.S.C. §103(a) over SU 1346977/SU3984301A ("SU") in view of U.S. Patent No. 5,038,996 to Wilcox et al. ("Wilcox"). This rejection is respectfully traversed.

Independent claim 1 recites, *inter alia*, a method for measuring diffusion coefficient in electrically conductive melts, comprising the steps of joining together two conductive solid

materials in parallel with a gravity direction and by heating and melting the materials under static magnetic field orthogonal to the gravity direction to form two conductive melts.

Independent claim 8 is an apparatus claim for measuring an inter-diffusion coefficient in conductive melts, comprising a heater for heating and melting two conductive solid materials joined along a gravity direction and a magnetic field-applying means for applying a static magnetic field to the conductive melts in a direction orthogonal to the direction of gravity.

As discussed during the personal interview, an advantage of the "static magnetic field orthogonal to the gravity direction" is described in the specification at, for example, paragraphs [0006] and [0017]. SU and Wilcox do not disclose or suggest this feature. Thus, SU and Wilcox do not disclose or suggest the subject matter recited in claims 1 and 8.

However, at the suggestion of Examiner Verbitsky to avoid a potential rejection over the combination of SU and Wilcox, claim 8 is amended to recite measuring means for measuring an inter-diffusion coefficient between said conductive solid materials after cooling and solidifying said conductive melts. Claim 8 is further amended to clarify that the inter-diffusion coefficient is a measure of mutual diffusion of said conductive melts into each other. New claim 17 is added to recite measuring an inter-diffusion coefficient between said conductive solid materials by determining a degree of mutual diffusion of said conductive melts into each other after cooling and solidifying said conductive melts.

As discussed during the personal interview, the feature of "mutual diffusion of said conductive melts into each other" is described in the specification at, for example, paragraph [0017]. SU and Wilcox do not disclose or suggest such a feature. Thus, SU and Wilcox do not disclose or suggest the subject matter recited in claims 8 and 17.

Accordingly, Applicants respectfully submit that independent claims 1, 8 and 17 are patentable over SU and Wilcox. Claims 2-7 and 9-16 depend from independent claims 1 and

8, respectively, and are likewise patentable over the applied references at least in view of their dependency, as well as for the additional features they recite. Accordingly, withdrawal of the rejection of claims 1-12 and 14-16 is respectfully requested.

The Office Action further rejects claim 13 under 35 U.S.C. §103(a) over SU in view of Wilcox and further in view of U.S. Patent No. 5,304,972 to Sato. This rejection is respectfully traversed.

Applicants respectfully submit that Sato does not disclose or suggest static magnetic field orthogonal to the gravity direction, or mutual diffusion of conductive melts into each other. Thus, Sato does not supply the subject matter lacking in SU and Wilcox.

Therefore, Applicants respectfully submit that the combination of SU, Wilcox and Sato fails to disclose, teach or suggest all the features recited in claim 8. Accordingly, claim 8 is patentable over SU, Wilcox and Sato, and claim 13 is likewise patentable over the applied references at least in view of its dependence on claim 8, as well as for additional features it recites. Withdrawal of the rejection of claim 13 is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-17 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Date: September 15, 2005

Attachments:

Copy of June 8, 2005 Forms PTO-1449  
Copy of June 24, 2005 Forms PTO-1449

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